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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/709,523	11/13/2000	Seong-Kweon Ha	041993-5151	4416

9629 7590 01/02/2004

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WASHINGTON, DC 20004

EXAMINER

FARAHANI, DANA

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/709,523

Applicant(s)

HA ET AL.

Examiner

Dana Farahani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakravorty (US Patent 6,181,569) in view of Wark et al., hereinafter Wark (US Patent 6,291,897).

Regarding claims 2, 5, 9, and 10, Chakravorty discloses in figure 8b a semiconductor package comprising a semiconductor substrate (not shown in the figure); a plurality of chip pads 304 separately formed on an upper surface of the semiconductor substrate; a first metal pattern 307 formed on upper surfaces of the plurality of chip pads; a second metal pattern 310 including an upper surface, that is the surface that is aligned with the upper surface of layer 308, and side portions, that is the portions that are inside the cavity which is formed in 308, and having an irregular shape and formed on an upper surface of the first metal pattern; and an external terminal 311 electrically connected to the upper surface and the side portions of the second metal pattern. Furthermore, Chakravorty discloses a first insulation layer 305 formed on a region of the upper surface of the semiconductor substrate not occupied by the plurality of chip pads; and a second insulation layer 308 formed on upper surfaces of the first insulation layer and the first metal pattern.

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Chakravorty does not disclose the second metal portion has three portions and the external connection extending between the first and third, and the second and third portions.

Wark discloses in figure 5B that contact 144 has portions 132 and 134, and that contact 142 extends between the portions. Moreover, Wark teaches that these projected portions prevent damage to the main contact 144, while still maintain the connection between contact 144 and contact 142 (see column 9, lines 45-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use separate contact portions in the second metal portion of the Chakravorty structure in order to prevent any damage to the second metal portion.

Regarding claim 8, see column 9, lines 10-14 of Chakravorty.

Regarding claims 3 and 4, Chakravorty discloses the claimed invention except for expressly disclosing the first metal pattern includes titanium and the second metal pattern includes nickel. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use these materials since they are commonly used in semiconductor contacts.

Regarding claims 6 and 7, Chakravorty discloses the claimed invention except for the insulation layers include polyimide and benzocyclobutene. However, Chakravorty teaches that it is known to use these materials as set forth in column 8, lines 18-21. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use these materials as taught by Chakravorty in order to make the insulation layers.

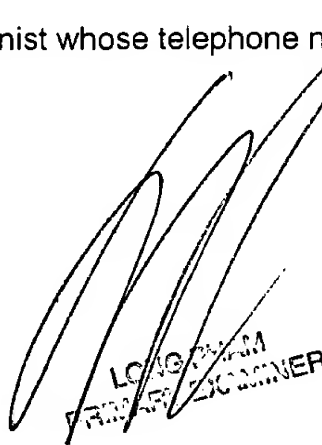
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M Fahmy can be reached on (703)308-4918. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D. Farahani



LONGHAM
FARAHANI
EXAMINER